Wireless Outdoor CO2 / Temperature / Humidity Sensor

Wireless Sensor Network Based on LoRa Technology

RA0715Y
Data Sheet

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Introduction

The RA0715Y has a temperature and humidity sensor that detects and transmits ambient temperature and humidity data. The RA0715Y has a CO2 sensor that detects the concentration of CO2 in the air and transmits the detected data to other devices via LoRa wireless network. It uses the SX1276 wireless communication method.

Main Characteristics

- Compatible with LoRaWAN™ protocol
- CO2 sensor detection
- Temperature and humidity detection
- LoRaWAN^{TM} Class A compatible
- Frequency Hopping Spread Spectrum (FHSS)
- Available third-party platform: Actility/ThingPark, TTN, MyDevices/Cayenne

Applications

- Smart home
- Outdoor air detection
- Other

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Electrical Characteristics

Power Supply	Power adapter DC power supply, DC12V/1A
Operating Current 1	40mA (No radio frequency signal transmission)
Operating Current 2	80mA (With radio frequency signal transmission)

CO2 Sensor Characteristics

Working Current	< 85mA
CO2 Accuracy	± (100ppm + 6% reading)
CO2 Range	400ppm to 5000ppm
Warm-up Time	3mins
Response Time	T<90s
Output Signal	PWM UART

Temperature and Humidity Sensor

Temperature Measurement Range	-20°C~55°C
Temperature Measurement Accuracy	±0.5°C@25°C Max.±0.8°C@ -20°C~55°C
Humidity Measurement Range	0%RH-100%RH
Humidity Measurement Accuracy	±4%RH @25°C

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Frequency

TX Power	US915 20dbm; AS923 16dbm; AU915 20dbm; CN470 19.15dbm; EU868 16dbm; KR920 14dbm; IN865 20dbm;
Rx Sensitivity	-136 dBm (LoRa, Spreading Factor=12, Bit Rate=293bps) -121dBm (FSK, Frequency deviation=5kHz, Bit Rate=1.2kbps)
Antenna Type	Build-in antenna
Communication Range	Up to 10 km, the actual transmission distance depends on the environment.
Data Transfer Rate	0.3kbps ~ 50kbps (LoRa) 1.2kbps ~ 300kbps (FSK)
Spread Technique	LoRa / FSK
Available Frequency	EU863-870,US902-928,AU915-928,KR920-923,AS923-1,AS923-2, AS923-3,IN865-867,CN470-510 (Note: optional, to be done in the factory configuration)

Physical

Dimension	Mask: D220mm*H180mm Main Part: 111mm*86mm*41mm
Operating Temperature Range	-20℃ ~ 55℃
Operating Humidity Range	< 90%RH (no condensation)
Storage Temperature range	-40℃ ~ 85℃